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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/633,625	08/05/2003	Kyeong Jin Kim	041501-5455-01	6368
9629	7590	09/17/2004	EXAMINER	
MORGAN LEWIS & BOCKIUS LLP 1111 PENNSYLVANIA AVENUE NW WASHINGTON, DC 20004			DI GRAZIO, JEANNE A	
			ART UNIT	PAPER NUMBER
			2871	

DATE MAILED: 09/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/633,625

Applicant(s)

KIM, KYEONG JIN

Examiner

Jeanne A. Di Grazio

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 July 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 11-18 and 22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 11-18 and 22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Status of Claims

Claims 11-18 and 22 are pending. Claim 11 has been amended per Applicant's Amendment of July 7, 2004. Claim 18 has been amended in response to the Examiner's claim objection in the previous Official Action. Claim 22 is a newly added claim per Amendment of July 7, 2004. Claims 1-10 and 19-21 have been cancelled per transmittal received August 5, 2003.

Priority

Priority to Korean Patent Application P2000-0066138 (Nov. 8, 2000) is claimed.

This is a Continuation Patent Application of prior application 09/986,189 now United States Patent 6,642,992 B2.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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Claims 11-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over United States Patent 6,265,034 B1 (to Kagawa et al.) in view of United States Patent 6,313,894 B1 (to Sekine et al.).

As to claim 11 (amended), Kagawa teaches and discloses a liquid crystal display device. Kagawa has, with reference to Figure 2, a first substrate (3), a second substrate (3) opposing the first substrate, and at least one liquid crystal layer (8) between the first (3) and second substrates (3) wherein the liquid crystal layer (8) has at least a photo-reactive material (ABS, entire patent).

Kagawa further teaches and discloses that the liquid crystal containing photo-reactive material is then irradiated with UV light over the cell surface (Column 10, Lines 21-29 and Column 11, Lines 55-62). This process results in an aligned photo-reactant. The Examiner notes that Applicant's Specification states that "[t]hen if UV light is irradiated over the entire LCD panel, the UV hardening double sealant 37 is hardened by the UV light, and the liquid crystal layer is aligned as shown in FIG. 5B since the photo-reactant is contained in the liquid crystal layer (Specification at [0037] page 12)" and "if UV light is irradiated into the liquid crystals 41 ... having a photo-reactive polymer 40 or a photo-reactive oligomer, for example, the photo-reactive polymer 40 will be aligned in an upward direction and the liquid crystal 41 will be aligned in a downward direction, as shown in FIG. 5B (Id. at [0039] page 12). Because Kagawa teaches and discloses both a liquid crystal material having a photo-reactive material and UV light irradiation over the cell surface, then, at least, the photo-reactive material is aligned.

Kagawa does not appear to explicitly specify at least one sealant along a periphery of one of the first and second substrates.

Sekine teaches and discloses, with reference to Figures 5A and 5B, a main sealing agent (13) along a periphery of one of first (11) and second (12) substrates. The main sealing agent (13) is used in the display to secure a liquid crystal material between substrates and to contain the liquid crystal material in a display region. The main sealing agent (13) serves to maintain the opposite glass and active matrix substrates parallel to each other and to contribute to a constant distance between the substrates (Column 7, Lines 43-48).

Sekine is evidence that ordinary workers in the field of liquid crystal displays would have found the reason, suggestion, and motivation to provide a sealant along a periphery of one of first and second substrates to keep the substrates parallel with each other and to maintain a constant distance between the substrates.

Therefore, it would have been obvious to one of ordinary skill in the art of liquid crystal displays at the time the invention was made to modify Kagawa in view of Sekine to incorporate at least one sealant along a periphery of one of first and second substrates into a liquid crystal display device (1) to contain the liquid crystal layer and photo-reactive material in a display region, (2) to contribute to the substrates remaining parallel with each other, and (3) to maintain a constant distance between the substrates.

As to claims 12 and 13, the main sealing agent may include thermosetting resins, UV-cured resins, and dual active resins which can harden in the presence of UV rays as well as heating (Sekine at Column 7, Lines 43-48).

As to claim 14, it may be presumed that the photo-reactant material includes one of a photo-reactant polymer and photo-reactant oligomer.

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As to claim 15, although not illustrated, Sekine presumably contains at least an alignment layer for alignment of the liquid crystal layer (17).

As to claim 16, Sekine has, with reference to Figure 7, black stripes (222) (Applicant's light-shielding layer), a color filter (fluorescence layer, 221), and common electrode (223) all on opposing substrate (220) as conventional elements of a color active matrix display.

As to claim 17, Sekine, with respect to Figure 5B, illustrates at least one spacer (14) to maintain substrate gap.

As to claim 18, the spacer of Figure 5B (spacer 14) appears columnar in shape.

Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over United States Patent 6,265,034 B1 (to Kagawa et al.) in view of United States Patent 6,313,894 B1 (to Sekine et al.) and further in view of United States Patent 5,872,609 (to Hiji et al.).

As to claim 22 (new), Kagawa does not appear to explicitly specify that the photo-reactant material remains uncured.

Hiji teaches and discloses a light control element and method wherein a liquid crystal and photo-setting uncured material are irradiated with coherent light beams to result in an anisotropic gel in which orientation is periodically fixed (Column 6, Lines 14-40).

Hiji is evidence that ordinary workers in the field of liquid crystals would have found the reason, suggestion, and motivation to have an uncured photo-reactant material so that an anisotropic gel could be formed with periodically fixed orientation.

Therefore, it would have been obvious to one of ordinary skill in the art of liquid crystals at the time the invention was made to modify Kagawa in view of Hiji for an uncured photo-reactant material so that an anisotropic gel could be formed with periodically fixed orientation.

Response to Arguments

Applicant's arguments filed July 7, 2004 with respect to claim 11 have been fully considered but they are not persuasive.

Applicant's only argument is that "although Kagawa et al. discloses a liquid crystal layer containing a photo-curable resin, Kagawa et al. is completely silent with respect to an alignment state of the photo-curable resin within the liquid crystal layer (Remarks at page 5)."

It is respectfully pointed out that Kagawa teaches and discloses a liquid crystal material having a photo-reactive material and this combination is exposed to UV light. According to Applicant's enabling disclosure, application of UV light upon a cell surface that has the liquid crystal / photo-reactive combination results in an aligned photo-reactive material. Thus, the Kagawa photo-reactant is therefore aligned.

The Examiner notes that Applicant's Specification states that "[t]hen if UV light is irradiated over the entire LCD panel, the UV hardening double sealant 37 is hardened by the UV light, and the liquid crystal layer is aligned as shown in FIG. 5B since the photo-reactant is contained in the liquid crystal layer (Specification at [0037] page 12)" and "if UV light is irradiated into the liquid crystals 41 ... having a photo-reactive polymer 40 or a photo-reactive oligomer, for example, the photo-reactive polymer 40 will be aligned in an upward direction and the liquid crystal 41 will be aligned in a downward direction, as shown in FIG. 5B (Id. at [0039]

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page 12). Because Kagawa teaches and discloses both a liquid crystal material having a photo-reactive material and UV light irradiation over the cell surface, then, at least, the photo-reactive material is aligned.

Applicant has not argued the rejections of dependent claims 12-18 and is thus considered to have acquiesced to the rejection of claims 12-18.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeanne A. Di Grazio whose telephone number is (571)272-2289.

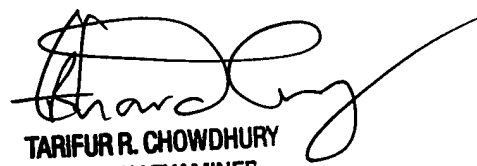
The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim, can be reached on (571)272-2293. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jeanne Andrea Di Grazio
Patent Examiner
Art Unit 2871

JDG



TARIFUR R. CHOWDHURY
PRIMARY EXAMINER